AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (currently amended): A method for receiving a video sequence including query objects to be extracted and generating object-labeled images based on the query objects, the method comprising the steps of:

(a) dividing the video sequence into one or more shots, each of which is a set of frames having a similar scene, and selecting one or more key frames from each of the shots;

(b) determining whether there exists an object similar to each of the query objects in each of the key frames and extracting the similar objects as corresponding query object based initial object regions from each of the key frames;

(c) for each query object, tracking object regions in all frames of ~~each of the~~ only shots determined to have a respective similar object in a key frame based on the corresponding query ~~image~~ object based initial object regions; and

(d) labeling the object regions tracked in each of the frames based on information on the corresponding query objects.

Claim 2 (currently amended): The method of claim 1, wherein step (b) comprises:

~~(b1) determining whether there exists an object similar to each of the query objects in each of the key frames, and if there is a similar object in a key frame, extracting the similar object as a corresponding query object based initial object region; and~~

~~(b2)~~ generating query object based shot mask images in all key frames of the shots by setting pixels of the query object based initial object regions extracted from each of the key frames as a first value and setting the remaining pixels of each of the key frames as a second value.

Claim 3 (original): The method of claim 2, wherein step (c) comprises:

(c1) tracking the object regions in all frames of each of the shots based on the corresponding query image based shot mask images and video feature values of the corresponding query objects; and

(c2) generating query object based frame mask images in all frames of each of the shots by setting pixels of the object regions tracked in each of the frames as a first value and setting the remaining pixels of each of the key frames as a second value.

Claim 4 (original): The method of claim 3, wherein, in step (d), each of the object regions is labeled in each frame with a unique number set to the corresponding query image or coordinate information of the corresponding query image in each frame.

Claim 5 (currently amended): An apparatus for receiving a video sequence including query objects to be extracted and generating object-labeled images based on the query objects, the apparatus comprising:

a shot and key frame setting unit for dividing the video sequence into one or more shots, each of which is a set of frames having a similar scene, and selecting one or more key frames from each of the shots;

an initial object region extractor for determining whether there exists an object similar to each of the query objects in each of the key frames and extracting the similar objects as corresponding query object based initial object regions from each of the key frames;

an object region tracker for tracking, for each query object, object regions in all frames ~~each of the~~ of only shots determined to have a respective similar object in a key frame based on the corresponding query image object based initial object regions; and

an object-labeled image generator for labeling the object regions tracked in each of the frames based on information on the corresponding query objects.

Claim 6 (currently amended): The apparatus of claim 5, wherein the initial object region extractor ~~determines whether there exists an object similar to each of the query images in each of the key frames, and if there is a similar object in a key frame, extracts the similar object as a corresponding query object based initial object region, and~~ generates query object based shot mask images in all key frames of each of the shots by setting pixels of the query object based initial object regions extracted from each of the key frames as a first value and setting the remaining pixels of each of the key frames as a second value.

Claim 7 (original): The apparatus of claim 6, wherein the object region tracker tracks the object regions in all frames of each of the shots based on the corresponding query image based shot mask images and video feature values of the corresponding query objects, and generates query object based frame mask images in all frames of each of the shots by setting pixels of the object regions tracked in each of the frames as a first value and setting the remaining pixels of each of the key frames as a second value.

Claim 8 (original): The apparatus of claim 5, wherein the object-labeled image generator labels each of the object regions in each frame with a unique number set to the corresponding query image or coordinate information of the corresponding query image in each frame.

Claim 9 (currently amended): A computer readable medium having embodied thereon a computer program for receiving a video sequence including query objects to be extracted and generating object-labeled images based on the query objects, wherein generating object-labeled images comprises the steps of:

(a) dividing the video sequence into one or more shots, each of which is a set of frames having a similar scene, and selecting one or more key frames from each of the shots;

(b) determining whether there exists an object similar to each of the query objects in each of the key frames and extracting the similar objects as corresponding query object based initial object regions from each of the key frames;

(c) for each query object, tracking object regions in all frames of ~~each of the~~ only shots determined to have a respective similar object in a key frame based on the corresponding query ~~image~~ object based initial object regions; and

(d) labeling the object regions tracked in each of the frames based on information on the corresponding query objects.